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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/159,442	09/24/1998	ELWOOD G. NORRIS	T7029	5130
20444	7590	01/11/2007		
VAUGHN W NORTH THORPE NORTH WESTERN P O BOX 1219 SANDY, UT 840911219			EXAMINER LEE, PING	
			ART UNIT	PAPER NUMBER
			2615	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/159,442

Applicant(s)

NORRIS ET AL.

Examiner

Ping Lee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 14-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 30-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 30, line 7, the phrase "can give rise" is vague and indefinite.

Regarding claim 38, line 9, "said large area film structure" lacks antecedent basis.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-11, 14-16, 18-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tibbetts (US 4,056,742) in view Tanaka et al (hereafter Tanaka) (US 4,823,908).

Regarding claims 1-3, 5-7, 20-32 and 35-59, Tibbetts discloses a general housing of a piezoelectric film transducer structure without teaching electrician circuit on how to generate the driving signal. One skilled in the art would search the related art with teaching on how to drive the piezo transducer. Tanaka teaches (see Fig. 2) how to driver piezoelectric vibrator based on the parametric interaction (col. 2, lines 33-43) of the ultrasonic waves. The parametric speaker would have a super directivity. Thus, it

would have been obvious to one of ordinary skill in the art to modify Tibbetts by utilizing the parametric interaction as taught in Tanaka in order to having a super directive speaker.

The claimed "film being continuous over a length of at least ten wavelengths of the electrical signal at its lowest frequency value" would be an obvious design choice to modify Tibbetts. Tibbetts teaches that the length of the film depending on the required speaker size and the pressure it must withstand (col. 4, lines 29-32). Applicant fails to define in the specification the significance of this feature. Thus, depending on the speaker size requirement, such as mid-size speaker, it would have been obvious to one of ordinary skill in the art to modify Tibbetts to have the film being continuous over a length of at least ten wavelengths of the electrical signal at its lowest frequency value.

Regarding claims 4, 8-11 (Fig. 1), 14-16, 19, 24, 33, 34, Tibbetts fails to disclose the film as a thermally formed film. However, it would have been obvious to one of ordinary skill in the art to use any well-known made film, included thermally formed film, for Tibbetts' transducer because it was considered as a matter of engineering design choice to use a particular type of film.

Regarding claim 18, although Tibbetts fails to explicitly show the distance between peak to trough is one-half wavelength, this is an inherent feature to ensure that the piezo film to operate properly.

4. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tibbetts in view of Tanaka as applied to claim 1 above, and further in view of Sakagami et al (hereafter Sakagami) (US 4,784,915).

Regarding claim 17, Tibbetts fails to show the distance between the film and the supporting backplate. Sakagami teaches how to use a piezoelectric film (col. 6, lines 27-35) transducer with a backplate (2) for generating ultrasonic signals. As shown in col. 6, Sakagami suggested that the spacing between the piezo film and the backplate is quarter wavelength. Thus, it would have been obvious to one of ordinary skill in the art to modify Tibbetts and Tanaka in view of Sakagami by using the piezoelectric film transducer in order to generate the ultrasonic signals.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1, 20, 30, 38, 46 and 53 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 28 of copending Application No. 10/923,295 in view of Tanaka et al (US 4,823,908).

This is a provisional obviousness-type double patenting rejection.

Claim 28 of copending Application No. 10/923,295 fails to show the step of generating at least one of a modulated ultrasonic carrier signal and at least two ultrasonic signals having a different in frequency value which falls within an audio frequency range. However, this was a well known and necessary step of generating the ultrasonic signal applied to the parametric film speaker. Tanaka et al illustrate such concept in Fig. 2. Thus, it would have been obvious to one of ordinary skill in the art to modify claim 28 of copending Application No. 10/923,295 in view of Tanaka et al in order to obtain the ultrasonic signal to drive the film transducer.

7. Claims 1, 20, 30, 38, 46 and 53 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 32 of copending Application No. 10/923,288 in view of Tanaka et al (US 4,823,908).

This is a provisional obviousness-type double patenting rejection.

Claim 32 of copending Application No. 10/923,288 fails to show the step of generating at least one of a modulated ultrasonic carrier signal and at least two ultrasonic signals having a different in frequency value which falls within an audio frequency range. However, this was a well known and necessary step of generating the ultrasonic signal applied to the parametric film speaker. Tanaka et al illustrate such concept in Fig. 2. Thus, it would have been obvious to one of ordinary skill in the art to

modify claim 32 of copending Application No. 10/923,288 in view of Tanaka et al in order to obtain the ultrasonic signal to drive the film transducer.

Response to Arguments

8. Applicant's arguments filed 10/27/06 have been fully considered but they are not persuasive.

In response to applicant's argument regarding claim 30, examiner believes that it would benefit the applicant by amending the language to be more definite. Giving the whole context, "facilitating generating at least one electronic signal that can give rise to creation of an audio frequency range sound output in an air medium by interaction of sound waves from said higher frequency vibration with the air medium", the audio frequency range sound output is definitely being created (not may be created) when there is an interaction between the ultrasonic frequency and the air. This is the actual result (audio signal being generated) of parametric interaction, and should be the result of every parametric interaction of the parametric loudspeaker.

Examiner did not state that Tanaka's invention was the same as what is being disclosed in the specification. Examiner merely compared the claimed invention with Tanaka. Applicant submitted four photos to aid argument. Photo 1 shows a ruler at the bottom of a white space and photo 2 shows a ruler at the top of a black space. They did not seem to relate to the current invention or any invention cited in the office action. Photos 3 and 4 show bi-morph devices. Instead of comparing the claimed invention with bi-morph devices, applicant compared the bi-morph device with what is being

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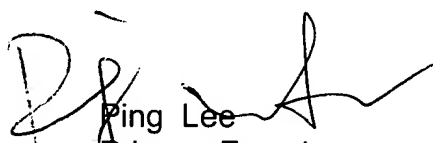
disclosed in the specification. A "film", as explained in the previous office action, is merely a thin layer according to Webster's Ninth New Collegiate Dictionary. As pointed in the previous office action, Tanaka shows the claimed film in various drawings. The filter (10) in Tanaka has not been interpreted as the claimed film. The piezoelectric vibrator as shown in various drawings illustrates the claimed film.

In another matter, applicant never responds to double patenting rejection.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ping Lee whose telephone number is 571-272-7522. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian C. Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Ping Lee
Primary Examiner
Art Unit 2615

pwl